

# the world of machine learning algorithms – a summary

## regression

Ordinary Least Squares Regression (OLSR)  
Linear Regression  
Logistic Regression  
Stepwise Regression  
Multivariate Adaptive Regression Splines (MARS)  
Locally Estimated Scatterplot Smoothing (LOESS)  
Jackknife Regression

## regularization

Ridge Regression  
Least Absolute Shrinkage and Selection Operator (LASSO)  
Elastic Net  
Least-Angle Regression (LARS)

## instance based

also called **case-based**, **memory-based**

k-Nearest Neighbour (kNN)  
Learning Vector Quantization (LVQ)  
Self-Organizing Map (SOM)  
Locally Weighted Learning (LWL)

## dimensionality reduction

Principal Component Analysis (PCA)  
Principal Component Regression (PCR)  
Partial Least Squares Regression (PLSR)  
Sammon Mapping  
Multidimensional Scaling (MDS)  
Projection Pursuit  
Discriminant Analysis (LDA, MDA, QDA, FDA)

## deep learning

Deep Boltzmann Machine (DBM)  
Deep Belief Networks (DBN)  
Convolutional Neural Network (CNN)  
Stacked Auto-Encoders

## associated rule

Apriori  
Eclat  
FP-Growth

## ensemble

Logit Boost (Boosting)  
Bootstrapped Aggregation (Bagging)  
AdaBoost  
Stacked Generalization (blending)  
Gradient Boosting Machines (GBM)  
Gradient Boosted Regression Trees (GBRT)  
Random Forest

## think big data

## bayesian

Naive Bayes  
Gaussian Naive Bayes  
Multinomial Naive Bayes  
Averaged One-Dependence Estimators (AOOE)  
Bayesian Belief Network (BBN)  
Bayesian Network (BN)  
Hidden Markov Models  
Conditional random fields (CRFs)

## decision tree

Classification and Regression Tree (CART)  
Iterative Dichotomiser 3 (ID3)  
C4.5 and C5.0 (different versions of a powerful approach)  
Chi-squared Automatic Interaction Detection (CHAID)  
Decision Stump  
M5  
Random Forests  
Conditional Decision Trees

## clustering

Single-linkage clustering  
k-Means  
k-Medians  
Expectation Maximisation (EM)  
Hierarchical Clustering  
Fuzzy clustering  
DBSCAN  
OPTICS algorithm  
Non Negative Matrix Factorization  
Latent Dirichlet allocation (LDA)

## neural networks

Self Organizing Map  
Perceptron  
Back-Propagation  
Hopfield Network  
Radial Basis Function Network (RBFN)  
Backpropagation  
Autoencoders  
Hopfield networks  
Boltzmann machines  
Restricted Boltzmann Machines  
Spiking Neural Networks  
Learning Vector quantization (LVQ)

## ...and others

Support Vector Machines (SVM)  
Evolutionary Algorithms  
Inductive Logic Programming (ILP)  
Reinforcement Learning (Q-Learning, Temporal Difference,  
State-Action-Reward-State-Action (SARSA))  
ANOVA  
Information Fuzzy Network (IFN)  
Page Rank  
Conditional Random Fields (CRF)